

CLAIMS

What is claimed is:

1. A remote access system comprising:

5 a user interface for entering a high-level instruction for controlling a remote device;

a plurality of remote devices;

one or more universal controllers connected to the plurality of remote devices; and

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a resource manager connected to the one or more universal controllers, the resource manager monitoring system status information, receiving the high-level instruction from the user interface, compiling the high-level instruction into one or more bytecodes, identifying an appropriate universal controller, and automatically dispatching the bytecodes to a universal controller for execution thereby, the bytecodes controlling one or more of the plurality of remote devices.

15 2. The system of claim 1, wherein the plurality of remote devices comprises sensors.

20 3. The system of claim 2, wherein the sensors comprise electromechanical, optical, acoustic, seismic, magnetic, moisture, pollution, organic, pressure, acceleration, physiological, or thermal sensors.

4. The system of claim 1, wherein the plurality of remote devices comprises actuators.
5. The system of claim 4, wherein the actuators comprise electric motors, pneumatic drives, hydraulic drives, electromagnetic drives, pumps, valves, fans, relays, or switches.
6. The system of claim 1, further comprising a multiplexer for connecting the plurality of remote devices to the universal controller.
7. The system of claim 6, wherein the multiplexer allows for switching between analog and digital devices.
8. The system of claim 1, wherein the one or more universal controllers automatically detect and integrate additional devices connected thereto.
- 15 9. The system of claim 8, wherein the one or more universal controllers automatically provide status information about the additional devices to the resource manager.
10. The system of claim 1, further comprising a computer program written at the user interface, the computer program including a plurality of high-level instructions for controlling one or more of the plurality of remote devices.
- 20 11. The system of claim 1, wherein the resource manager further comprises a library of high-level instructions.

12. The system of claim 11, wherein the library is accessible via the user interface.
13. The system of claim 12, wherein the user can select a high-level instruction from the library for execution by the one or more universal controllers.

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14. The system of claim 1, wherein the one or more universal controllers provides status information and results of execution to the resource manager.
15. The system of claim 1, wherein the one or more universal controllers further comprise a plurality of expansion modules.

16. The system of claim 15, wherein the expansion modules are connected to the plurality of devices.

17. The system of claim 16, wherein the expansion modules provide up/down counting, digital inputting/outputting, analog to digital conversion, digital to analog conversion, signal generation, power amplification, or opto-relay switching.

18. The system of claim 1, wherein the universal controller executes loops of instructions.

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19. The system of claim 1, wherein the universal controller executes mathematical computations.

20. The system of claim 1, wherein the universal controller stores to and reads from local and remote memory.

21. A method for allowing a user to remotely access a plurality of remote devices  
5 comprising:

allowing the user to enter a high-level instruction at a user interface;

receiving the high-level instructions at a resource manager;

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compiling the high-level instruction into a plurality of bytecodes;

choosing a universal controller connected to the resource manager based upon system status information;

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automatically dispatching the bytecodes to the universal controller based upon the instruction and status information corresponding to the universal controller; and

executing the bytecodes to activate one or more of the plurality of remote devices.

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22. The method of claim 21, further comprising:

gathering results of execution at the universal controller;

5 transmitting the results to the resource manager; and

dispatching the results to the user interface for review by the user.

23. The method of claim 21, wherein the step of executing the bytecodes comprises  
10 activating a sensor in response to the bytecodes.

24. The method of claim 23, further comprising activating electromechanical, optical,  
acoustic, seismic, magnetic, moisture, pollution, organic, pressure, acceleration, physiological, or  
thermal sensors in response to the bytecodes.

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25. The method of claim 21, wherein the step of executing the bytecodes comprises  
activating an actuator in response to the bytecodes.

26. The method of claim 25, further comprising activating electric motors, pneumatic drives,  
20 hydraulic drives, electromagnetic drives, pumps, valves, fans, relays, or switches in response to  
the bytecodes.

27. The method of claim 21, further comprising connecting additional remote devices to the universal controller.
28. The method of claim 27, further comprising automatically detecting device types and 5 integrating the additional remote devices.
29. The method of claim 28, further comprising automatically dispatching status information about the additional devices to the resource manager.
- 10 30. The method of claim 21, further comprising providing a library of high-level instructions accessible via the user interface.
31. The method of claim 30, further comprising allowing the user to select an instruction from the library of high-level instructions.
- 15 32. The method of claim 31, further comprising compiling, dispatching, and executing the instruction.
34. The method of claim 21, further comprising dispatching unrecognized bytecodes from the 20 universal controller to one or more expansion modules connected to the universal controller.
35. The method of claim 34, further comprising executing the unrecognized bytecodes at the one or more expansion modules.